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ABSTRACT

Viable employment options for persons entering the field of behavioral research are examined, and the need for such research in the field of health services is discussed. The following statistics are presented in tabular form: (1) number of doctorates awarded annually in psychology with five year intervals, 1920-1974; (2) age of psychology doctorates in 1977; (3) employment prospects of 1969-76 behavioral Ph.D.'s; (4) employment plans of 1969-76 behavioral Ph.D.'s; (5) type of employer for doctorates employed full- or part-time in psychology excluding postdoctoral appointees in three fiscal years: 1973, 1975, and 1977; (6) type of employer for doctorates employed full- or part-time in psychology excluding postdoctoral appointees: 1934-1976 cohort and 1971-1976 cohort; (7) committee recommendations for predoctoral and postdoctoral awards in the behavioral sciences; (8) committee recommendations for predoctoral and postdoctoral awards in health services research; and (9) major research problem areas for those focusing on health services research. (JD)

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HEALTH AND HEALTH SERVICES RESEARCH:

EMERGING BEHAVIORAL SCIENCE CAREERS

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Paper presented at the annual meeting of the American Psychological Association, Toronto, Canada, July 31, 1978.

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HEALTH AND HEALTH SERVICES RESEARCH: EMERGING BEHAVIORAL SCIENCE CAREERS

Pamela Ebert-Flattau

ABSTRACT: *In response to changing national needs for research personnel, the federal government has initiated policy reforms in recent years which affect the availability of federal tax dollars to train investigators in certain scientific areas.*

In the area of health, the National Research Service Award Act of 1974 established a program of awards administered by the NIH, ADAMHA and the HRA, Division of Nursing which requires among other things that the recipient serve in an appropriate teaching or research position for a period equal to the length of support on the award.

The Act also directed the National Academy of Sciences (NAS) to conduct a continuing study of bioscientists to guide further refinement of public policy in this area.

Since 1975 the NAS Committee on a Study of National Needs for Biomedical and Behavioral Research Personnel has transmitted yearly reports to Congress and to the Secretary, DHEW, with a fourth report scheduled for release September 30.

The Committee has recommended a substantial reorientation of research training support in the biosciences. In the behavioral sciences specifically, the Committee has called for a shift to predominantly postdoctoral training to promote the development of such research areas as population studies, evaluation research and research on the role of behavior in the onset of physical illness and the maintenance of health.

Health services research has also been singled out by the Committee as an emerging area of national need. In this case the Committee has called for an expansion of mental health services research and evaluation training by ADAMHA primarily at the predoctoral level.

INTRODUCTION

The National Research Service Award Act of 1974 did not mark the beginning of federal subsidization of health research training. In actual fact the Ransdell Act of 1930 (PL 71-251), which also established the National Institute of Health, created a system of fellowships for duty at NIH and at other medical and research institutions.

As each categorical institute was created in succeeding years, including the National Institute of Mental Health in 1948, provision was made for training awards which would assure the rapid development of a cadre of scientists whose skills would contribute to the scientific goals of the funding institute (U. S. Senate Report 93-381, 1973).

It wasn't until 1972 when the President's budget projections for FY 1974 included a recommendation to terminate these diverse training programs that serious review was considered of the thirty-odd years of federal support for training in these areas, and that a proposal was made for a continuing study of future needs for these scientists.

In 1974 the NAS agreed to conduct the study specified by law, establishing a Committee in the Commission on Human Resources of the National Research Council.

Practically speaking, the immediate task of the Committee became that of developing a common data framework so that information could be collected from the NIH and ADAMHA describing the areas in which training awards were being made. Once the magnitude of the training effort could be estimated, the Committee sought quantitative information which would be useful in modifying these programs of support.

Models of scientific personnel production and employment have been developed and continuing assessment has been made of appropriate related studies which address research advances

and areas of need, such as the President's Panel on Biomedical Research (1976) or the more recent President's Commission on Mental Health (1978).

The Committee has also convened public meetings at the National Academy of Sciences to solicit views from the professional community regarding research and personnel trends.

Present market conditions and recent advances in the various biosciences suggest that the nation is experiencing a profound upheaval in the traditional patterns of employment for doctoral level scientists in the component disciplines. This "market-quake" is giving new impetus to emerging research specialties, while dampening the demand for others.

THE BEHAVIORAL SCIENCES MARKET

There is not yet evidence of a serious oversupply of doctoral level behavioral scientists. However, given the fact that the continued expansion of the behavioral science labor force has been due almost entirely to the addition of new Ph.D.'s in recent years, one would strongly suspect that the pattern of employment would likely resemble a kaleidoscope upon close inspection.

Data available to the Committee certainly speak for themselves.

As Table 1 (Slide 1) illustrates, the number of persons having earned doctorates in psychology between 1920 and 1974

has escalated dramatically in the last two decades. Hovering at an average of 100 Ph.D.'s in psychology annually through 1946, the number of earned psychology doctorates has yet to evidence a significant decline from the expansionist period marked by the postWWII years.

Indeed, as Figure 1 (Slide 2) so clearly indicates, the number of psychology doctorates awarded between 1970 and 1974 equals the number earned in the previous decade. Or, to put it another way, the number of Ph.D.'s awarded in 1974 alone equals the number awarded between 1950 and 1954, the beginning of the Ph.D. "boom" in psychology.

With this profound expansion of earned doctorates, it is not surprising to find, therefore, that 60 percent of the psychology doctorates in the U.S. labor force in 1977 were under the age of 45, as Table 2 reveals (Slide three).

Changes in doctoral production are also beginning to be reflected in changes in the aspirations and employment prospects of emerging behavioral science doctorates. Responses of non-clinical psychology doctorates found in Table 3 (Slide four) reveal that only 70 percent of those graduating in 1976 reported firm employment commitments at the time of graduation, which may be contrasted with 80 percent for those graduating in 1969. Conversely, over 19 percent were seeking employment in 1976, as contrasted to a figure of 8 percent in 1969.

Similarly, postgraduation plans have altered over the years, as Table 4 (Slide 5) illustrates. There has been a decline in

the fraction planning employment in the academic sector and some growth in those planning to enter government and such other sectors as hospitals, clinics and nonprofit organizations.

There has also been an expansion in the proportion of graduates thinking about postdoctoral training, although the proportion actually taking an appointment remains quite small (NRC, 1975-77, 1977 report).

Data in Table 5 (Slide 6) reveal that the changing pattern of employment plans has also been borne out in the profile for the psychology doctoral labor force as a whole. The proportion of Ph.D.'s employed in educational institutions has contracted, while hospitals and clinics, and business and industry have absorbed larger and larger fractions of these doctorates.

Furthermore, these changes in the labor force employment pattern are paralleled and exaggerated in the pattern of employment of the 1971-76 Ph.D. psychology cohort.

All this is not to suggest that high rates of unemployment have been observed among recent behavioral science graduates. A survey conducted by the Committee in 1976 revealed only slightly more than 2 percent of the 16,000 individuals completing their doctorates in the behavioral sciences between 1971 and 1975 were unemployed and seeking employment at the time of the survey--a figure comparable to that found for the biomedical scientists surveyed at the same time (NRC, 1975-77, 1977 report).

Taken together these data suggest that the professional community providing research training for behavioral science

personnel must take cognizance of these current market trends if individuals planning careers in behavioral research are to emerge with viable employment options.

BEHAVIOR AND HEALTH

In its 1976 report and again in 1977, the Committee concluded that present market conditions coupled with recent advances in behavioral research suggested that the proportion of awards made for research training in this area by NIH and ADAMHA be shifted from a ratio of 90 percent predoctoral/10 percent postdoctoral to a ratio of 30 percent predoctoral/70 percent postdoctoral by the early 1980's. This shift, illustrated in Table 6, (Slide 7) was recommended by the Committee in the belief that "sufficient opportunity for training in the behavioral sciences at the post-doctoral level would be assured, while an adequate number of awards for basic research training at the predoctoral level would be maintained."

The shift in training emphasis also sought to develop a cadre of specialized investigators in the health-related fields of behavioral research, in keeping with the thrust of the goals of NRSA legislation.

In 1976 the President's Panel on Biomedical Research released its report on the state of the U.S. scientific enterprise in the area of health. Subcommittees on the Behavioral Sciences and Social and Behavioral Development urged that more investigators were needed in the areas of population research, including

fertility studies, evaluation research, adolescent development, mental retardation research, as well as a variety of neuro-behavioral studies.

In addition to calling for increased postdoctoral training opportunities in these areas singled out by the President's Panel, the NRSA Committee has also responded to the significant strides taken in recent years in the area of behavior and health. (Indeed, as some of you may be aware, the APA created a new division yesterday on Health Psychology which has among its goals the advancement of psychology "in the understanding of health and illness through basic and clinical research")

Many individuals consider behavioral science research training to be restricted to the programs of ADAMHA since the NIMH has been involved in this kind of training since 1948. In actual fact a recent NRC study reveals that the various institutes of NIH have made over 3,000 awards for behavioral science research training over the years, a situation which further lends credance to the call for more training in the area of behavior and health.*

HEALTH SERVICES RESEARCH

The NRSA Committee has also singled out health services research as an emerging area of national need, and has struggled

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*In fact, the NHLBI and the NDI have already begun to place more emphasis on awards for behavioral science research training support in these areas through NRSA programs.

for well over two years to define this type of research and this type of research training. (Slide 8)

The definition currently employed is as follows:

> Health services research is theoretical an applied research which examines the organization and performance of health care delivery systems and makes possible informed health care policy.

Within the framework of the NRSA authority, programs for this type of research training are supported by NIMH in particular. (Slide 9).

During the past year the Committee and its Panel on Health Services Research convened a one-day Invitational Conference in Washington, D.C. to explore with trainers and employers of health services research personnel the need for training support in these areas.

In recent years opportunities for employment in HSR have become explicit as research and evaluation personnel have been sought by Community Mental Health Centers, the mushrooming Health Systems Agencies, the VA, and state and local departments of health. Academically affiliated Centers for Health Services Research have been established at 8 institutions in recent years which will serve as both users and producers of HSR personnel. And, finally, for-profit research firms and third party payors have created job categories which, at least implicitly, suggest another market for HSR personnel.

The Committee has called for the continued development of services research and evaluation training efforts by ADAMHA in

view of the fact that much new health planning legislation, properly implemented, will require the experience and expertise of doctorally-trained scientists familiar with the system under study.

In summary the NRSA program is viewed as a mechanism which can assure the nation of a small but significant cadre of behavioral science investigators who can skillfully address the pressing health and health services research issues confronting the nation today.

Table 1: Number of Doctorates Awarded Annually in Psychology, with Five-Year Intervals, 1920-1974

Year of Award	n	Year of Award	n
1920	35	1950	360
1921	28	1951	488
1922	34	1952	581
1923	65	1953	656
1924	55	1954	667
Total *1920-24*	*217*	Total *1950-54*	*2,752*
1925	71	1955	734
1926	74	1956	629
1927	76	1957	714
1928	84	1958	773
1929	122	1959	800
Total *1925-29*	*427*	Total *1955-59*	*3,650*
1930	101	1960	752
1931	119	1961	861
1932	105	1962	888
1933	92	1963	974
1934	128	1964	968
Total *1930-34*	*545*	Total *1960-64*	*4,443*
1935	112	1965	1,072
1936	114	1966	1,164
1937	112	1967	1,373
1938	116	1968	1,606
1939	117	1969	1,843
Total *1935-39*	*571*	Total *1965-69*	*7,058*
1940	129	1970	2,119
1941	113	1971	2,181
1942	126	1972	2,386
1943	92	1973	2,512
1944	68	1974	2,741
Total *1940-44*	*528*	Total *1970-74*	*11,939*
1945	65		
1946	85	Grand Total	32,855
1947	122		
1948	190		
1949	266		
Total *1945-49*	*725*		

SOURCE: *A Century of Doctorates*, NRC, Commission on Human Resources, 1978.

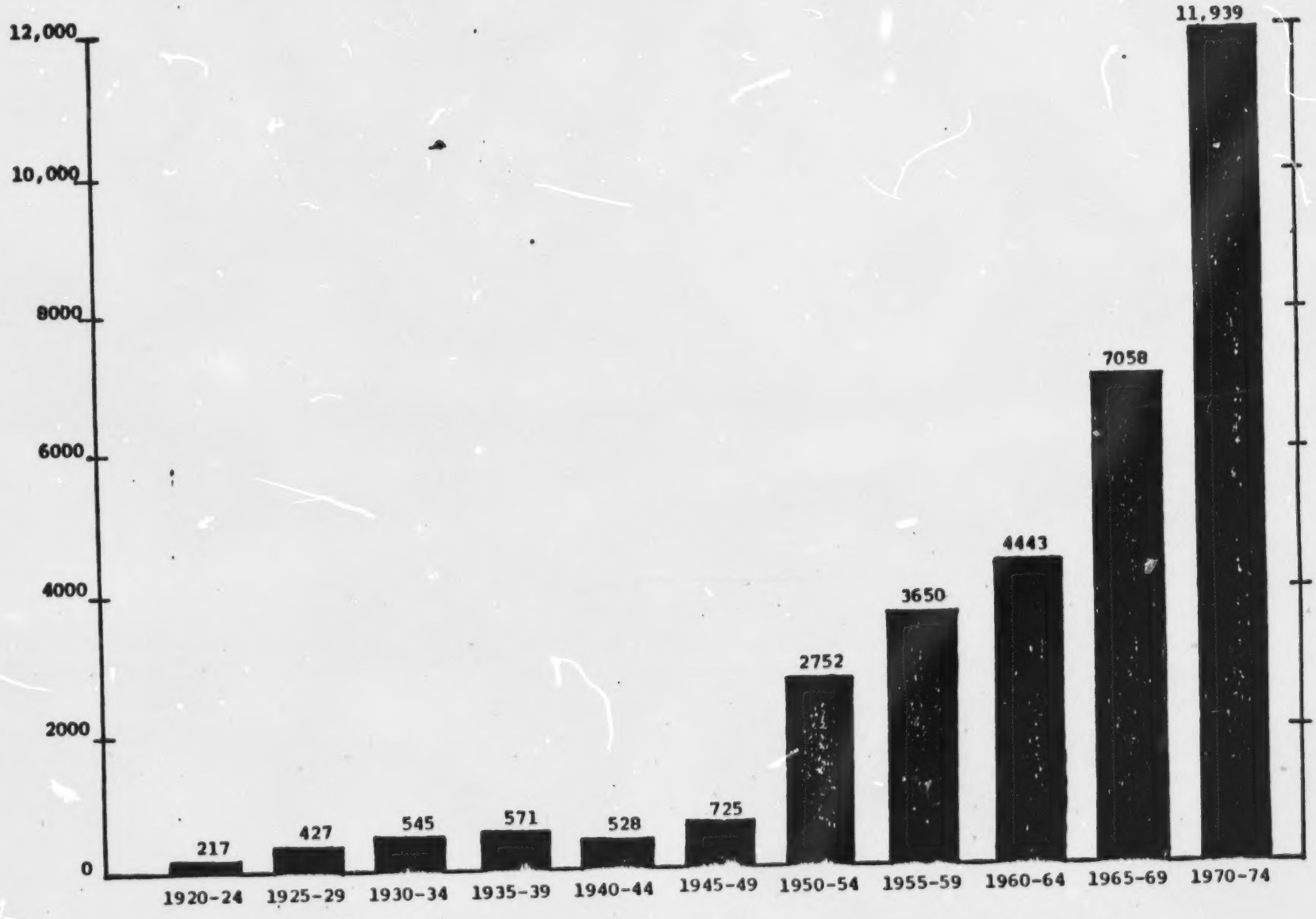

Figure 1: Number of Doctorates Awarded Annually in Psychology by Five-Year Intervals, 1920-1974.

Table 2: Age of Psychology Doctorates in 1977 (1934-1976 Cohort)

Age in Survey Year	1934-1976 Psych. Doctorates (%)
Total	100.0
Under 30	4.4
30-34	21.7
35-39	20.5
40-44	13.9
45-49	12.4
50-54	11.5
55-59	7.8
60-64	4.0
Over 64	3.8
No Report	0.1
n	34,177

SOURCE: *Science, Engineering and Humanities Doctorates in the U.S.*, NRC, Commission on Human Resources, 1978.

Table 3: Employment Prospects of 1969-76 Behavioral Ph.D.'s

		Fiscal Year of Doctorate							
		1969	1970	1971	1972	1973	1974	1975	1976
Job prospects at completion of Ph.D. program									
Total Ph.D.'s in behavioral sciences	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Firm commitment	%	81.5	81.3	81.6	78.7	77.0	75.1	73.6	71.2
Tentative plans	%	9.7	10.2	8.2	9.3	9.7	10.9	10.1	10.1
Seeking position	%	7.5	8.1	9.4	11.2	12.7	13.4	15.9	18.1
Other	%	1.3	0.3	0.8	0.7	0.5	0.7	0.3	0.6
Ph.D.'s in anthropology	N	159	194	217	231	299	346	354	386
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Firm commitment	%	89.0	88.3	86.5	87.0	78.3	76.3	63.2	65.7
Tentative plans	%	5.2	4.4	5.3	6.0	8.3	8.1	15.0	7.5
Seeking position	%	5.8	6.7	7.7	6.9	12.7	15.0	21.9	26.5
Other	%	0.0	0.6	0.5	0.0	0.7	0.6	0.0	0.3
Ph.D.'s in clinical psychology	N	514	533	601	667	731	760	790	863
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Firm commitment	%	78.1	74.0	72.9	74.5	75.9	72.8	71.3	68.8
Tentative plans	%	11.9	14.6	12.7	12.0	10.5	11.9	11.4	12.9
Seeking position	%	8.3	11.2	13.4	12.0	12.8	14.1	16.6	17.5
Other	%	1.6	0.2	1.0	1.5	0.7	1.2	0.7	0.8
Ph.D.'s in prychology	N	1168	1264	1424	1514	1660	1763	1847	1918
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Firm commitment	%	80.0	80.7	81.2	76.3	74.2	73.2	73.2	70.0
Tentative plans	%	10.3	10.5	8.1	9.4	9.9	11.4	10.0	9.9
Seeking position	%	8.3	8.4	9.5	14.0	15.3	14.8	16.6	19.4
Other	%	1.4	0.3	1.1	0.4	0.6	0.6	0.2	0.7
Ph.D.'s in sociology	N	353	449	527	576	527	581	596	663
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Firm commitment	%	88.4	86.0	87.7	85.3	83.9	82.4	82.0	79.7
Tentative plans	%	5.4	8.0	5.8	7.5	8.3	8.9	6.3	8.5
Seeking position	%	5.1	5.5	6.2	6.4	7.8	8.3	11.2	11.5
Other	%	1.2	0.5	0.2	0.9	0.0	0.4	0.5	0.3
Survey item responses[a]	N	2144	2459	2827	2937	3210	3275	3495	3781
Total Ph.D.'s[b]	N	2258	2556	2955	3115	3374	3576	3698	3971

[a] Only responses from graduates with definite or tentative employment plans were counted here.

[b] The total Ph.D.'s reported here exceeds the 1971-75 Ph.D. estimates presented earlier because the set of basic behavioral fields used from the Survey of Earned Doctorates, from which data in this table were derived, included a somewhat broader population than the set developed for the Committee's survey of recent doctorate recipients.

SOURCE: NRC, Survey of Earned Doctorates, Washington, D.C., 1969-76.

Table 4: Employment Plans of 1969-76 Behavioral Ph.D.'s

		Fiscal Year of Doctorate							
		1969	1970	1971	1972	1973	1974	1975	1976
Postgraduation plans									
Total Ph.D.'s in behavioral sciences	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Planning postdoc. appointment	%	11.0	11.3	11.1	10.8	11.0	11.3	11.8	13.5
Planning employment	%	88.5	88.2	88.3	88.7	88.3	88.5	87.4	85.5
Academic sector	%	59.4	60.5	61.6	58.5	54.9	53.8	52.6	48.7
Business	%	3.2	3.1	2.3	2.1	3.1	3.0	2.8	3.0
Government	%	13.8	13.4	12.8	16.2	14.8	15.2	15.2	15.3
Other	%	12.2	11.3	11.6	12.0	15.5	16.5	16.8	18.5
Other plans	%	0.5	0.4	0.6	0.5	0.7	0.2	0.9	1.0
Ph.D.'s in anthropology	N	159	194	217	231	299	346	354	386
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Planning postdoc. appointment	%	4.8	12.6	4.7	9.0	10.5	8.5	6.9	8.7
Planning employment	%	94.5	86.6	92.6	90.5	87.9	91.5	91.2	90.2
Academic sector	%	88.3	82.6	87.4	84.6	78.7	82.2	83.5	77.5
Business	%	0.0	0.0	0.0	0.5	1.3	2.2	1.9	0.4
Government	%	3.4	3.0	2.1	1.5	0.4	3.3	2.3	5.7
Other	%	2.8	1.2	3.2	4.0	7.5	3.7	3.4	7.2
Other plans	%	0.7	0.6	2.6	0.5	1.7	0.0	1.9	1.1
Ph.D.'s in clinical psychology	N	514	593	601	667	731	760	790	863
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Planning postdoc. appointment	%	13.2	9.1	10.4	9.8	10.1	11.7	11.5	12.5
Planning employment	%	86.8	90.7	89.2	89.9	89.3	87.9	88.1	86.9
Academic sector	%	32.9	36.3	34.7	26.4	28.3	25.1	24.8	22.6
Business	%	0.7	1.3	1.6	0.9	2.1	2.3	1.3	2.3
Government	%	32.2	34.6	32.7	39.4	33.3	28.9	31.9	32.5
Other	%	21.0	18.5	20.2	23.2	25.5	31.6	30.0	29.4
Other plans	%	0.0	0.2	0.4	0.4	0.7	0.3	0.5	0.6
Ph.D.'s in psychology	N	1168	1264	1424	1514	1660	1763	1847	1918
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Planning postdoc. appointment	%	13.3	15.4	16.4	14.9	14.0	14.7	15.9	18.5
Planning employment	%	86.4	84.1	83.2	84.6	85.1	85.1	83.2	80.5
Academic sector	%	59.3	56.9	57.2	56.1	51.6	49.8	48.3	43.0
Business	%	5.8	5.7	3.8	3.4	4.7	4.6	3.8	4.5
Government	%	9.6	9.6	10.7	13.9	12.7	15.1	13.7	13.7
Other	%	11.7	11.9	11.6	11.2	16.1	15.6	17.3	19.3
Other plans	%	0.3	0.5	0.3	0.5	0.8	0.1	1.0	1.0
Ph.D.'s in sociology	N	353	449	527	576	527	581	596	663
	%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Planning postdoc. appointment	%	3.2	4.2	2.6	3.5	5.2	3.9	3.7	5.0
Planning employment	%	95.2	95.4	96.6	95.7	94.6	95.6	95.9	93.7
Academic sector	%	84.4	85.8	86.0	87.6	84.1	83.6	84.1	81.1
Business	%	0.6	0.2	0.6	0.8	1.3	0.4	1.6	1.9
Government	%	5.1	3.7	3.9	3.3	4.5	5.8	5.1	4.5
Other	%	5.1	5.6	6.0	3.9	4.7	5.8	5.1	6.3
Other plans	%	1.6	0.5	0.9	0.8	0.2	0.4	0.4	1.3
Survey item responses[a]	N	1956	2251	2539	2585	2784	2814	2926	3071
Total Ph.D.'s[b]	N	2258	2556	2955	3115	3374	3576	3698	3971

[a] Only responses from graduates with definite or tentative employment plans were counted here.

[b] Includes a total (in all years) of 1,028 graduates in speech and hearing sciences not subsumed under one of the four major areas.

Table 5: Type of Employer for Doctorates Employed Full- or Part-time in Psychology Excluding Postdoctoral Appointees in Three Fiscal Years: 1973, 1975 and 1977

Type of Employer	Fiscal Year		
	1973 (1930-1972 Ph.D.'s)	1975 (1930-1974 Ph.D.'s)	1977 (1934-1976 Ph.D.'s)
Total	100.0	100.0	100.0
Educational inst.	61.3	58.2	53.4
Federal gov.	4.3	4.2	4.4
State/local gov.	3.9	3.9	4.0
Hosp./clinic	13.3	16.2	17.7
Other nonprofit org.	4.4	3.2	3.2
Business/industry	5.4	14.1	16.8
Other/no report	7.4[a]	0.2	0.4
n	24,365	28,531	28,046

a. Subsequently reclassified largely into "Business/industry" category.

SOURCE: NRC, Surveys of Doctoral Scientists and Engineers, 1974, 1976; NRC, Survey of Science, Engineering and Humanities Doctorates, 1978.

Table 6: Type of Employer for Doctorates Employed Full or Part-time in Psychology Excluding Postdoctoral Appointees: 1934-1976 Cohort and 1971-1976 Cohort

Type of Employer	Cohort	
	1934-1976 Ph.D.'s	1971-1976 Ph.D.'s
Total	100.0	100.0
Educational inst.	53.4	50.0
Federal gov.	4.4	4.1
State/local gov.	4.0	4.5
Hosp./clinic	17.7	22.1
Other nonprof. org.	3.2	3.5
Business/industry	16.8	15.4
Other/no report	0.4	0.4
n	28,046	12,064

SOURCE: NRC, Survey of Science, Engineering and Humanities Doctorates, 1978.

Table 7: Committee Recommendations for NIH and ADAMHA Predoctoral and Postdoctoral Awards in the Behavioral Sciences

Agency Awards and Committee Recommendations	Fiscal Year						
	1975	1976	1977	1978	1979	1980	1981
Actual awards							
Total	*1966*	*1801*	*1738*				
Pre	*1754*	*1401*	*1352*				
Post	*212*	*400*	*386*				
1976 Recommendations							
Total		1860	1740	1570			
Pre		1500	1200	850			
Post		360	540	740			
1977 Recommendations							
Total					1490	1390	1300
Pre					745	575	390
Post					745	815	910

SOURCE: *Personnel Needs and Training for Biomedical and Behavioral Research*, NRC, Commission on Human Resources, 1977.

Table 8: Committee Recommendations for ADAMHA Predoctoral and Postdoctoral Awards in Health Services Research

Agency Awards and Committee Recommendations	Fiscal Year						
	1975	1976	1977	1978	1979	1980	1981
Actual Awards							
Total	*183*	*191*	*144*				
Pre	*132*	*121*	*79*				
Post	*51*	*70*	*65*				
1976 Recommendations							
Total		185	210	230			
Pre		135	120	135			
Post		50	90	95			
1977 Recommendations							
Total					250	275	300
Pre					145	160	175
Post					105	115	125

SOURCE: *Personnel Needs and Training for Biomedical and Behavioral Research*, NRC, Commission on Human Resources, 1977.

Primary Discipline of Research Training	Major Research Problem Areas								
	Health Personnel Mental Health Personnel	Ambulatory Care Child Health Services Dental Health Services Emergency Health Services Health Services for the Disadvantaged Indian Health Services Long Term Care Nursing Health Services Pharmacy-related Health Services Rural Health Care Services Mental Health Services Drug Abuse Prevention Programs Alcoholism Prevention Programs	Inflation and Cost Containment Health Insurance	Legal Aspects of Health Care Health Politics	Community Studies Health Education Sociobehavioral Aspects of Health Care	Health Services Design and Development	Other
Behavioral sciences Anthropology Sociology Psychology							
Social sciences Economics Political science							
Biomedical sciences Biostatistics Bioengineering Epidemiology							
Public health							
Other fields Operations research Health administration Health education Public administration							

Figure 2: Primary Disciplines of Health Services Research Training and Major Research Problem Areas.